## INTRAOPERATIVE POSITIONING TO PREVENT DRIVELINE INSULATION FROM ACTING AS A CONDUIT FOR LEFT VENTRICULAR ASSIST DEVICE POCKET INFECTION

**To the Editor:**

The recent case report from Pinninti and colleagues[1] describes an interesting source for left ventricular assist device infection related to simultaneous breaks in the internal and external portions of the driveline coating that permitted an ascending infection. Although this is a rare event, maneuvers to prevent it may be worthwhile because intraoperative positioning of the driveline may be an important factor in its occurrence. During my time at Hahnemann University Hospital, we had 2 such cases, both early in our experience with the HeartMate 2 device (Thoratec Corporation, Pleasanton, Calif). Both our patients were obese men in whom the driveline had been implanted in a manner similar to that shown in the radiograph provided by Pinninti and colleagues[1] (no loop), and both gained weight after implantation. Both were seen with an external driveline tear that was repaired. Both underwent successful device exchange after an internal infection was documented, and both were found to have a disruption of the covering on the internal portion of the driveline that was considered to be the source of the pocket infection.

Thoratec modified the driveline to reinforce the area where the driveline enters the pump, and this was done mainly to decrease wire fracture at this point. Leaving a loop in the driveline is already recommended to decrease the risk of wire fracture further, but this may also decrease the rate of the type of infection seen in the reported case. Our theory is that weight gain played a role in the internal driveline fracture in both our cases. Once the velour has grown into the surrounding tissues, the increasing weight of the pannus could pull on the internal driveline. Without a loop, the stress is transmitted to the point where the driveline enters the pump body. An internal loop can allow the patient to gain weight before there is tension at the pump. Once we began leaving a loop in the driveline, there were no fractures of the internal portion of the driveline.

Another interesting question is whether to seal the external portion of the driveline if there is a tear in the silicone. In our 2 cases, and the case presented in the article, repair of the external silicone layer preceded the pump pocket infection by a short time (weeks to months). If the repair had not been done, it is possible that infection might never have occurred. We continue to repair these tears to protect the driveline from further direct trauma, however, because we know that the infection rate with repair is very low.

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### Reference

1. Pinninti M, Tholan V, Sulemanjee NZ. Driveline insulation as a conduit for left ventricular assist device pocket infection. *J Thorac Cardiovasc Surg*. 2014;148:e135-6.

http://dx.doi.org/10.1016/j.jtcvs.2014.07.006

**Reply to the Editor:**

As mentioned by Dr John Entwistle in his letter, our patient was also obese and gained weight after left ventricular assist device implantation. This probably contributed to the relative pulling or tugging on the driveline with the increase in abdominal girth and external manipulation, resulting in breakage at the junction of the proximal portion of the intracorporeal driveline and the pump without causing any loss of skin integrity at the driveline exit site or change in the extracorporeal driveline. Leaving an internal loop, while maintaining a functional and convenient length of the extracorporeal driveline for connecting to the controller, probably would address this rare complication.

Regarding repair of the break in the external driveline with a self-adhesive tape, there are no clear data indicating whether to leave such a break open or to repair it. It is a common practice to repair it, though this is intended to prevent further damage to the electrical components and not necessarily to prevent infections. If the repair is not done, we believe that it is still possible to observe ascending infection, because the driveline has a continuous open conduit without any compartmentalization between inner and outer sheaths. Recently Schima and colleagues[1] reported a case of driveline damage directly at the transcutaneous exit site that was repaired with a highly expandable, tightly adherent latex tube without any infection at 5-month follow-up. Repair of the damaged driveline under sterile conditions with a tight, expandable tube to cover the damage, as in the case of Schima and colleagues,[1] or compartmentalization of the proximal driveline may prevent ascending driveline infections.

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